green, 14–30-furrowed and the ridges almost smooth; central hollow very large, stem-wall very thin; sheath elongated, slightly enlarged upward, marked with a black girdle at the base of the teeth; teeth mostly deciduous, white, marginal.—British Columbia to New York, south to California, Texas and Georgia.

8. Equisetum hyemale L. (Plate 4, Figs. 12, 13.)

Common Scouring-rush.

Stems slender, rather stiff, evergreen, 2–4 ft. high, rough, 8–34-furrowed, seldom branching; central hollow large, $\frac{1}{2}-\frac{2}{3}$ the stem diameter; sheaths marked with two black girdles; teeth brown, membranous, soon deciduous. Spikes pointed.—British Columbia to New England, south to California and Georgia; Europe; Asia.—Formerly used for scouring floors.

Explanation of Plate 4.

Fig. 1, *Equisetum variegatum,* cone and stem-tip, × 1; fig. 2, 3, *Equisetum laevigatum;* fig 2, joint of stem with bract-leaves; fig. 3, cone, × 1; fig. 4, *Equisetum scirpoides,* the left stem with bud-like terminal cone, the right stem sterile, × 1½; fig. 5, 6, *Equisetum telmateia;* fig. 5, a few joints of the green vegetative stem; fig 6, the top of the whitish, fertile stem with large bract-like leaves and cone, × ½; fig. 7, *Equisetum fluviatile,* upper portion of stem, and cone, × ½; fig. 8, 9, 10, *Equisetum arvense;* fig. 8, the upper part of the green vegetative stem; fig. 9, the top of the whitish fertile stem with large bracts and cone, × ½; fig. 10, the side view of a sporophyll, × 2½. fig. 11, *Equisetum palustre,* upper portion of plant and cone, × ½; figs. 12, 13, *Equisetum hyemale;* fig. 12, a joint of the stem with bract leaves; fig. 13, a cone, × 1.

A New Hybrid Fern.

F. C. GREENE

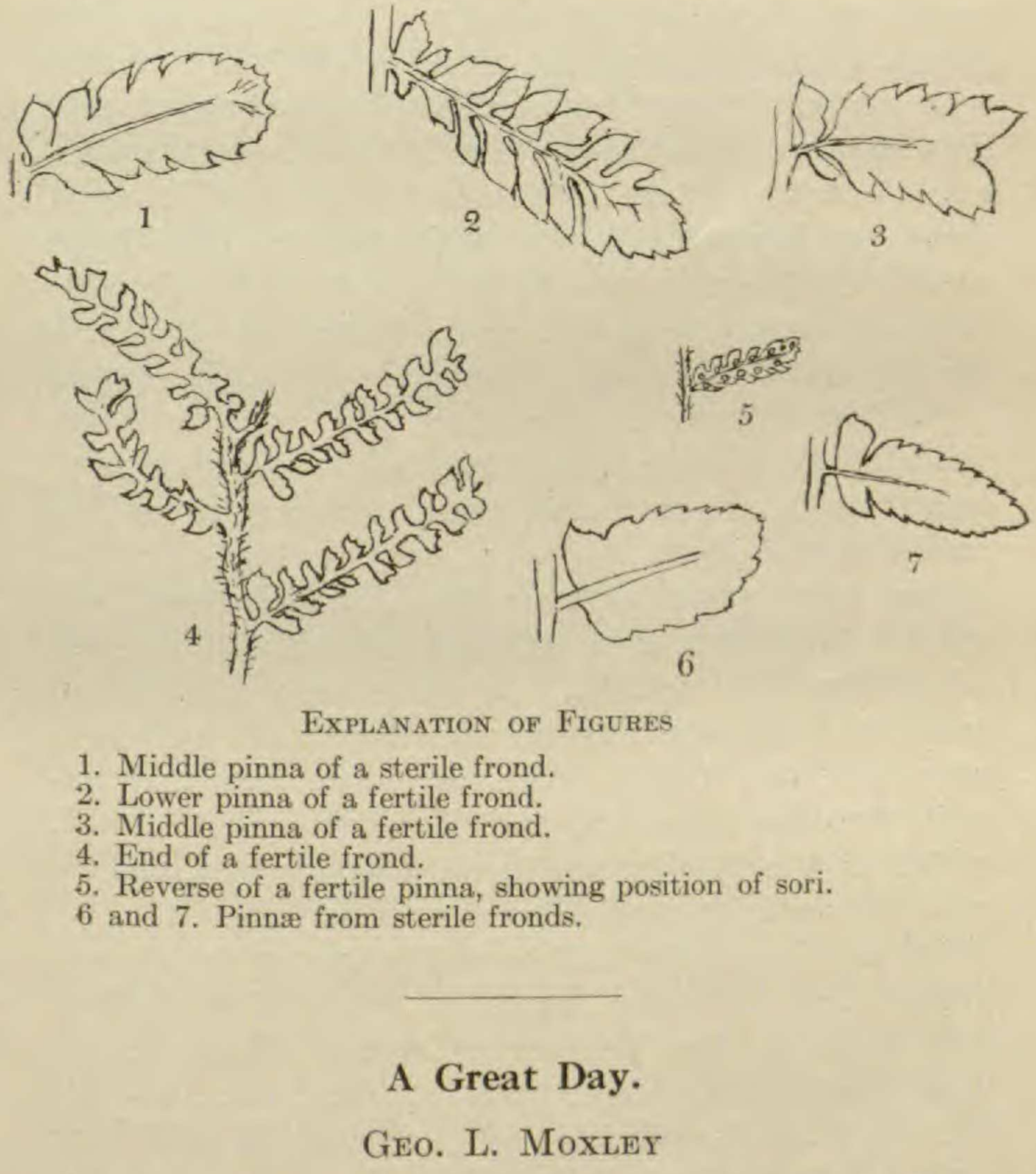
Polystichum acrostichoides × Dryopteris cristata hyb. nov.

In general appearance the hybrid closely resembles *Polystichum acrostichoides.* The fronds are dark green above and paler beneath. The fertile fronds have contracted pinnæ in the upper spore-bearing portion as in

P. acrostichoides, but the lower part is considerably narrower than that species. The sterile fronds probably approach more closely *Dryopteris cristata* in general outline. The pinnæ are extremely variable in shape, approaching *P. acrostichoides* on one hand and *D. cristata* on the other, but are usually pinnate. On large fertile fronds, the lower pair or two are pinnate throughout their length as are most of the contracted spore-bearing pinnæ. Practically all the pinnæ are pinnate next to the rachis both above and below the midrib. That above the midrib is the largest, suggesting the auricled portion of *P. acrostichoides*. Many of the pinnæ on the fertile fronds are indented at the outer end, showing a tendency to bifurcate, and are widest two-thirds or three-fourths of the distance from the rachis. The sterile fronds are usually beset with spines at the ends of the pinnules. In many of the fertile fronds, only the lower one to three pairs of spore-bearing pinnae develop, giving the frond the appearance of having been broken or bitten off at an early stage. The sori are usually intermediate in number between those of the parent species, but approach both in different fronds. In a few cases, sori appear on the pinnæ below the contracted portion. The indusia in a few instances show traces of a sinus.

Last winter the writer found, a short distance above Great Falls on the Virginia side of the Potomac, a fern that appeared to be a peculiar form of the common Christmas fern. Wishing to investigate this, a second trip was made to the locality, late in May, and three large healthy plants were found in company with a great number of typical *P. acrostichoides*, and with several plants of *D. cristata* growing a few feet distant. It took but a single glance to arrive at the conclusion that the plants were hybrids. The detailed examination showed an admixture of characteristics in every

feature, confirming the first impression. The tendency to bifurcate, noted above, had in one instance gone so far as to produce a forked frond. The figures given show the chief characteristisc. They are about natural size.



Explanation of Figures

1. Middle pinna of a sterile frond.
2. Lower pinna of a fertile frond.
3. Middle pinna of a fertile frond.
4. End of a fertile frond.
5. Reverse of a fertile pinna, showing position of sori.
6 and 7. Pinnæ from sterile fronds.

A Great Day.

Geo. L. Moxley

On May 30th of this present year Prof. T. J. Fitzpatrick and I set out on a botanical exploring expedition into a range of hills not far to the north of Los Angeles, Cal. While our quest was primarily for ferns,